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confusion from which she wished to extricate herself. In short, she met no case which resembled her own in all its parts. Novels generally represent the swain equally tormented and bewitched with the nymph, but here the swain was a mere, sober, industrious young man who wanted a wife for several good reasons best known to himself. He was also naturally shy, and could not bring himself to make warm professions at the first onset, even though he had known how; but if Julia had had patience, her lover's passion might have equalled or surpassed his prudence and bashfulness. Time, the great regulator of all things, settled Julia's agitation into a sober disappointment, which was not so violent as to disable her from forming plans of regaining her lover. From this time Julia became extremely domestic, and was very particular to keep the house in mould candles. In this charming occupation she has often been heard to soliloquize in doleful strains, and her sighs came so frequently as to keep the tallow from congealing. Henry was not one of those dejected swains who neglect their business for the dint of sorrow, nor was so high spirited as to desist visiting Julia's house when he had spare time on his hands. In one of these visits no one was at home but Julia, he inquired for her, the servant told her who was come; upon which she requested Mr. Henry might be told she was very busy, and if he pleased he might come to her: accordingly he was introduced into the kitchen, his nose met the smell it was accustomed to, and his eyes beheld Julia filling the candle moulds. A conversation naturally ensued upon this pleasing and profitable business. Julia expressed her partiality to it, inquired for fresh instruction which he freely gave, but which she said she would soon forget, he promised to repeat it, but applications and repetitions were so frequently made, that it was deemed most convenient for them to inhabit the same house for the purpose of mutual information, and reciprocal obligation. Henry resigned the care of the dairy, the tea caddie, and the wardrobe to Julia, and undertook to keep the en-

tire care and labour of the chandling to himself, which brought in sufficient cash to keep the field and dairy stocked, the tea caddie full, and the wardrobe furnished with linen and woollen of all sizes and sorts, and thus they happily jogged on in the bonds of matrimony. E.

APPENDIX NO. 1. TO THE REPORTS OF THE COMMITTEE FOR ROADS, BROAD WHEELS, &c.

Observations on the means of giving to the Wheels of heavy Carriages, the same intensity of pressure on the surface of Roads; and a statement of the advantages that would result therefrom; by Alexander Cumming, esq. of Pentonville.

ADMITTING that the cylindrical wheel was universally adopted, it becomes of the greatest importance that the breadth of the wheels be adjusted to the weight of the load; so that the *track* or *impression* of the wheels of every carriage shall be of the same depth, and that the wheels of each carriage may reciprocally roll in or upon the tracks of each other without damage: but that on the contrary, each subsequent wheel shall add to the improvement of the preceding, and render the track more perfect than before.

2. There appears to have been a great oversight in the regulations of the 13th of Geo. III. in this respect. The weight of the loaded wagon being divided into four, and each wheel supposed to bear an equal share, the total pressure of the wheels on the road appears to have been taken as the *effective power* of the wheel to act and make an impression on the surface; and no other criterion of the intensity of that power, to cut the surface or to make an impression or rut was assumed; no notice appears to have been taken of the proportion which the breadth of the wheel had to the weight that it sustained; nor of the *intensity* of the action of the same weight, on wheels of different breadths.

3. By this manner of estimating the effective power, or the intensity of the force with which the wheel com-

presses the surface which it rolls, one should be led to many erroneous conclusions; the intensity of the pressure of the wheel would always be supposed to depend wholly on the weight of the load; whatever might be the breadth of the wheel, and by that rule, the intensity of action of the 16-inch wheel with the load of eight ton, would be to the intensity with the wheel of three inches, and the load of $3\frac{1}{2}$ ton, as 4,480. to 1,960 and this would seem a pretty fair proportion between the weight of the load and the breadth of the wheels, at least it is so far in appearance, that the heaviest load has the greatest intensity.

4. Nothing can be more certain than that increasing the breadth of the wheel diffuses the pressure on a larger surface, and diminishes the intensity of that pressure on every inch of the surface that is rolled; let us then examine and compare the intensity of pressure of the sixteen inch wheel, and the three inch wheel, with the loads as before, making allowance for the breadth of each of the wheels; and the intensity of the pressure on *every inch* that is rolled by the sixteen inch wheel with the load of eight ton, will be equal only

to the dead weight of 280 lb. The intensity of the pressure of the three inch wheel with the load of three and a half ton, is equal to 653 lb. which is considerably more than twice the intensity of the pressure with the sixteen inch wheel. This shows how little attention had been paid to the real advantages of the broad wheel, and the disadvantages of the narrow; and proves the necessity of such new regulations, as shall render the intensity of the pressure of all wheels, and with all different loads, on the surface of the roads equal to each other, so that every wheel shall make an impression or track of the same depth.

5. The following table is according to the 13th of Geo III. The *three* first columns give the breadth of the wheels, the weight of the load, and the number of horses as stated in that act; the fourth column gives the weight drawn by each horse; the fifth gives the weight on each wheel, or the total pressure, whatever be the breadth of the wheel; and the sixth column gives the pressure on *every inch* of the breadth of the wheel, or the true intensity of the pressure on the surface of the road, according to the breadth of each wheel.

Breadth of the Wheels.	Weight of the Load.	The Number of Horses.	Weight drawn by each Horse.	Weight on each Wheel.	The pressure on every Inch.
16 inches.	8 ton.	10.	cwt. lb.		
9 do. rolling. 16.	$6\frac{1}{2}$ do.	8.	16. —.	40 cwt.	280 lb.
9 do. rolling. 9.	6 do.	8.	16. 42.	32 do.	404 do.
6 do. rolling 11.	$5\frac{1}{2}$ do.	6.	15. —.	30 do.	373 do.
6 do. rolling. 6	$4\frac{1}{2}$ do.	6.	18. 37.	$27\frac{1}{2}$ do.	513 do.
3 do. rolling. 3	$3\frac{1}{2}$ do.	4.	16 —.	$22\frac{1}{2}$ do.	420 do.
			17. 56	$17\frac{1}{2}$ do.	653 do.

7. It appears by this table that no regular proportion has been observed between the breadth of the wheels, the weight of the load, and the number of horses; in the fifth column, the *sum* of the pressure on the wheel decreases pretty gradually as the wheels become narrower, but in the sixth column, where the breadth of the wheel was taken into the account, the intensity of the pressure on every inch of the surface that is rolled is increased as the wheels become

narrower, which seems contrary to all reason.

8. With the nine-inch and the six-inch wheels when they roll a double surface, the weight of the load is considerably increased, although the resistance to the progress of the wheels, and the labour of the cattle, *with the same load*, is increased by rolling the double surface.

9 If the roads be in good order, the double rolling is of no use; if they be soft and compressible, they

resistance becomes greater as the surface that is rolled is broader; and it is generally supposed, that the resistance in rolling the double surface is the same as with the single: but it ought to be remembered, that with the single surface, the hind wheels run in the paved track of the front wheels, but with the double surface, every wheel has to compress and level its own track

10. It is much better to increase the breadth of the cylindrical wheels than to make the front, and the hind wheels of the same carriage, to roll double surfaces; the intensity of pressure on the surface of the road is diminished by increasing the breadth of the wheels, but not by rolling a double surface.

11. The advantages of rendering the intensity of the pressure of the wheels of all carriages as nearly equal as may be practicable, would be of the next greatest importance to the introduction of the cylindrical wheel.

12. Let us suppose a three inch wheel under a load three and a half tons, running in the track made by a sixteen inch wheel with the load of eight ton; the intensity of the narrow wheel 650 lbs. that of the broad wheel in whose track it runs, is only 280 lbs. the narrow wheel will therefore cut up the bottom of the broad track and meet with much more resistance than if it made no such impression; the resistance to the next wheel that follows in the same path is increased by the breaking up of the path; and the smooth surface of the broad track being cut open, it admits water, and introduces all the bad effects of wet seasons and subsequent hard frosts; all which evils might be avoided by having the intensity of the pressure of the narrow wheels, only equal to or something less than that of the broad wheel, the narrow wheel would in that case roll with great facility in the path of the broad wheel without making any impression, or in any respect damaging the track in which it runs

13. And if all wheels were made of as equal intensity, as circumstances will permit, they would mutually roll in the tracks of each other, without any other effect than each repairing

the path of any accidental damage which it may have received since the last wheel passed, the road will become more and more consolidated, its surface more close and impervious to water; there will be no dragging or grinding of conical wheels, no means of converting the best material into dust in summer, or into sludge in winter; there will then remain no other cause of damage to the roads except the pedestrian exertion of cattle.

14. The intensity of the pressure of the wheels may be regulated by maintaining a regular proportion between the weight of the load and the breadth of the wheels; it is nevertheless advisable to take the number of cattle into the account, and by that means it would seem that the intensity of the pressure might be preserved sufficiently equal with the cylindrical wheels, without the controul of the weighing engine, by observing a regular proportion between the number of horses and the breadth of the wheels.

15. The following table is therefore constructed so, as to give a regular proportion between the number of horses, the breadth of the wheels, and the weight of the load; and as two horses are the fewest that can be employed in a four-wheel waggon, we begin with that number, and proceed regularly to eight; and taking the average of the weight drawn by each horse, according to the act of 13th Geo. III we find it sixteen hundred; and assuming that as the weight to be drawn by each horse, according to the new regulation also, the weight of the load is thus determined by the number of horses, allowing sixteen hundred to each, and the breadth of wheel that is allowed to each horse, is determined by the sixteen inch wheel, drawn by eight horses, which gives two inches of breadth for each horse.

16. And by allowing sixteen hundred weight for each horse, the weight of the load is determined, and by giving two inches for each horse, the breadth of the wheels is ascertained for any number of horses; and thus the intensity of the pressure of the wheels of all carriages may be

determined and kept nearly equal to each other, by maintaining an uniform proportion of the weight of the load, and the breadth of the wheels, with the number of horses that draw the waggon, &c.

17. And the following table exhibits at one view, the breadth of the wheels, and the weight of the load, for any number of horses from two to eight, to give the same intensity of pressure with each.

	The Number of Horses.	The Breadth of the Wheels	The Weight of Waggon.	The Weight drawn by each Horse.	Weight on each Wheel.	The Pressure on every Inch.
			Ton. Cwt.			
18	8	16 inches.	6. 8.	16 cwt	32 cwt.	224 lb.
	7	14 do.	5. 12.	16 do.	28 do.	224 do.
	6	12 do.	4. 16.	16 do.	24 do.	224 do.
	5	10 do.	4. —.	16 do.	20 do.	224 do.
		8 do.	3. 4.	16 do.	16 do.	224 do.
	3	6 do.	2. 8.	16 do.	12 do.	224 do.
	2	4 do.	1. 12.	16 do.	8 do.	224 do.

19. The advantages of this arrangement are, that as the intensity of the pressure of the wheels of all the carriages are equal, or nearly so, the tracks of all wheels will be equally deep; and since the wheels are all cylindrical, and the axles straight, every wheel that runs in the track of another, will apply its whole breadth, as flatly to the bottom of the former track, as the wheel that formed it; and having the same intensity of pressure, it cannot disturb the parts that are in contact, nor prevent their cohesion or induration, nor produce any other effect on the former track, unless rendering the consolidation more perfect, and the surface more close and impervious to water, and compressing and uniting any loose or broken particles that may have fallen into the track since the last wheel had passed.

20. And as in the course of traffic the same carriage will sometimes lead, and sometimes follow, no inconvenience or interruption will take place in the uniform system of consolidation and amelioration by that alternate precedence; and it does appear from what has already been said of the three inch wheel rolling in the track of the sixteen inch wheel, that the narrow wheel should never have a greater intensity of pressure than the broad wheel, in order that it may run in the broad track without cutting or damaging it.

21. It has been suggested (14) that the controul weighing engines might be rendered unnecessary, by observing a regular proportion between the number of horses that draw the carriage, and the breadth of its wheels.

22. When Conical broad wheels were used, the difficulty of drawing the carriage, and the damage that was done the roads, were increased, as the intensity of the pressure on the surface; and although that intensity was diminished by increasing the breadth of the wheel, the dragging of its rim was so much increased by increasing the breadth, that every addition to the weight of the load became doubly hurtful to the road, and the check of the weighing engines under those circumstances became necessary.

23. But with the cylindrical wheel, there is no dragging at the rim, no grinding or pulverising, no resistance but what arises from the compressing and consolidating the materials; all the additional weight of the load increases the compressive force on the same extent of surface, and improves the road on which it rolls; and although the labour of the cattle must be increased by the first time of rolling a new track, in proportion as the load is heavier, and the impression deeper, the consolidation becomes more perfect, and the improvement more permanent, and the road, instead of being damaged by increasing the weight of the load with

the cylindrical wheels, is improved by it.

24. Where then is the use of the weighing engine, with the cylindrical wheels? It is not easy to divest the mind of impressions that have already been made, and confirmed by long experience. It is very natural for the waggoner to say, "If adding to the weight of the load, and to the breadth of the wheel, have heretofore been found from experience to be unfavourable to the roads, how happens it they should now become advantageous?"

25. The answer is simple and easy. The *broad wheels* formerly used were conical; and all the properties that arise from the conical shape are the most unfavourable to the roads that can be conceived; and so sensibly did the proprietors of broad wheel waggons feel the bad effects of these broad wheels that they have tried to avoid them, by narrowing the bearing of the wheels, conceiving that the only means of avoiding an evil that was increased by the breadth of the wheel, was, by reducing that breadth: and thus introduced the convex sole, and the narrow middle tire, and with them all the destructive effects of narrow wheels carrying monstrous loads; under all which circumstances the nature of the conical shape left them only the choice of two great evils, those that are inseparable from the conical shape, and those that are peculiar to the narrow wheels, each of which are increased by adding to the weight of the load.

26 But every property of the cylindrical shape is of the most favourable nature possible to the roads, and to the labour of the cattle; and the additional pressure that was so destructive to the roads with the conical wheels is in an equal degree favourable with the cylindrical wheel, and if a discretionary liberty be given of loading every waggon that has its cylindrical wheels of a breadth proportioned to the number of horses, no disadvantage will arise to the roads from any weight which that number of horses can draw.

For the Belfast Monthly Magazine.

A DIALOGUE BETWEEN AN IRISHMAN
AND AN ORANGEMAN ON THE 12TH
OF JULY, 1810.

Irishman. WHY do you wear that lily in your hat.

Orangeman.... in memory of King William and his victories over the Papists.

Irishman.... But could you not remember that king or his achievements without wearing that yellow flower? if not your memories must be very bad.

Orangeman.... But it has another motive; it shows our strength and our numbers.

Irishman.. Well, but if all those who wear yellow flowers are of your party, and all those who do not wear them are not of your party, they rather show your weakness, for few comparatively of all the people, wear them.

Orangeman.... But it shows our spirit.

Irishman.... Yes I admit, it shews in a distinguished manner your spirit.

Orangeman.... Besides it is an old custom.

Irishman.... Yes this I also admit; wearing yellow lilies refers to an event which has happened above a hundred years ago; so long has it happened, that you might now forget it, without any impeachment to your memory.

Orangeman.... Then you would have us forget the glory of our ancestry.

Irishman. I think not more of the glory of your ancestry, than of yourselves.

Orangeman.... It shows our loyalty.

Irishman.. It cannot show loyalty, for it unnecessarily insults the Catholics, your fellow citizens, who by this means, are rendered less friendly to you, and less affectionate to the government. Such conduct by proclaiming public separation and public insult is not loyal, it is disloyal; it is offensive to the king, the common parent of all his people, as it is offensive to a great body of his people, on whose universal affection for him, on whose universal union among themselves, rests the foundation alike of his throne and of their and of your own security against the common enemy of Europe.